

## REMARKS

### Introductory Comments:

Claims 1-18 were examined in the Office Action dated September 22, 2003.

Claims 1-4 and 6-8 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,973,444 to Xu *et al.*

Claims 5 and 9-18 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Xu *et al.* in view of U.S. Patent No. 6,413,487 to Resasco *et al.*

These rejections are traversed for the reasons discussed below.

Applicants acknowledge with appreciation the withdrawal of U.S.C. §102(e) rejection for claims 1-4, 6 and 7.

Claims 1-2, 6-9, 35, 37-38, and 42 are presently pending.

### **Addressing the Examiner's Rejections**

#### **Rejections of the Claims Under 35 U.S.C. §103**

(A) The Examiner has rejected claims 1-4 and 6-8 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,973,444 to Xu *et al.*

The applicants traverse the rejection and supporting remarks as the reference cited by the Office does not teach or suggest the claimed invention. In order to render claims obvious, the burden is on the Office to establish a *prima facie* case of obviousness for which three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to

one of ordinary skill in the art, to modify the references. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. The teachings or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Examiner's rejection is improper because *Xu et al.* does not teach all the elements of the claims.

In particular, *Xu et al.* does not teach or suggest conducting the reaction at a pressure of about 600 torr as in the Applicants' processes. The reference, at column 8, lines 61-63 states that "[t]he pressure of the carbon source can be from one millitorr to several atmospheres, either in pure form or in a carrier gas such as argon and nitrogen." This is the pressure of the carbon source, and not the pressure at which the reaction is conducted. In the reference, the reaction is conducted at very low pressures. *Xu et al.*, at column 15, lines 5-15 states:

Accordingly, lower pressures during operation are preferred. In most instances, the pressure should be less than about  $10^{-3}$  Torr, preferably less than about  $10^{-4}$  Torr, more preferably less than about  $10^{-5}$  Torr and most preferably less than about  $10^{-6}$  Torr.

Further, at column 21, lines 64-65 (Example 4) *Xu et al.* states that "the wafer was heated in 200 millitorr of acetylene at 650° C for about one minute." The disclosure of *Xu et al.* clearly states that their process is directed to forming the nanotubes under low pressure, such as less than about  $10^{-6}$  Torr. The reference thus does not teach or suggest

all the limitations of the applicants' claims. The Examiner is therefore respectfully requested to withdraw the rejection.

(B) The Examiner has rejected claims 5 and 9-18 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Xu *et al.* in view of U.S. Patent No. 6,413,487 to Resasco *et al.*

The applicants traverse the rejection and supporting remarks as the references cited by the Office do not teach or suggest the claimed invention. The combination of Xu *et al.* and Resasco *et al.* does not teach or suggest conducting the reaction at a pressure of about 600 torr as in the Applicants' processes. As discussed in detail above, Xu *et al.* disclose a process of forming nanotubes under low pressure that is most preferably less than about  $10^{-6}$  Torr. In contrast, Resasco *et al.* teach or suggest a method of preparing carbon nanotubes under high or elevated reaction pressures that range from about 1 atmosphere to about 40 atmospheres (column 4, lines 11-15). The combination of Xu *et al.* and Resasco *et al.* thus teach conducting the reaction at either very low pressures or high pressures. The combination does not teach or suggest conducting the reaction at about 600 torr, as in the applicants' processes, would produce carbon nanotubes. The Examiner is therefore respectfully requested to withdraw the rejection.

#### Request for Withdrawal of Finality

Claims 1-4 and 6-8 was rejected were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,973,444 to Xu *et al.* None of these claims were previously rejected under 35 USC §103(a). Further, Xu *et al.* is a new reference that is applied as the sole reference against claims 1-4 and 6-8, as well as a new

and primary reference against claims 5 and 9-18. Claim 1 was previously amended from “sufficient gas pressure” to “gas pressure of less than about 600 torr.” Claims 2-4 and 6-8 were not amended. The claims were thus not substantively changed by the previous amendment. Applicants therefore do not believe that, in light of this rejection, the Office Action is properly made final and respectfully request withdrawal thereof.

In particular, M.P.E.P. §706.07(a) makes clear that a rejection should not be made final “where the Examiner introduces a new ground of rejection not necessitated by amendment of the application by applicant.” (Emphasis added). The present §112, first paragraph rejection is a new ground of rejection that was not necessitated by amendment of the application by applicant. Since the substance of the claims is unchanged, the Office could have brought this rejection previously.

Further, the new reference, Xu *et al.* is now used as a primary reference. MPEP 706.02 states “prior art rejections should ordinarily be confined strictly to the best available art.” The office could have applied Xu *et al.* previously.

Accordingly, the Office cannot now, in a final action, state a new rejection and apply a new reference which could have been asserted previously without giving applicants an opportunity to address the same. Such is an abridgment of applicants' right to due process. Thus, applicants request withdrawal of the finality of the outstanding Office Action.

**CONCLUSION**

Applicants respectfully submit that the claims define an invention that is patentable over the art. Accordingly, a Notice of Allowance is believed in order and is respectfully requested.

If the Examiner notes any further matters which the Examiner believes may be expedited by a telephone interview, the Examiner is requested to contact the undersigned.

Respectfully submitted,  
Grigorian *et al.*

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